

**SINGAREN Design and Manufacturing Working Group**  
**And Proposed APAN Application SubWorking Group**

Report by

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**Proposed APAN Design and Manufacturing SubWorking Group**

**1. Charter**

- ㅉ Initiate a TeleDesign and Telemanufacturing Group in Asia Pacific region and contribute to the effort of building a Global Design and Telemanufacturing infrastructure.
- ㅉ Develop a Global Design and Telemanufacturing Facility to support the APAN TeleDesign and Telemanufacturing Group, consisting of remote rapid prototyping and rapid manufacturing devices, databank of design specifications and objects, a consultation service and other features.

**2. Background information**

A component of the economy of Asia-Pacific countries involves manufacturing of goods. As the process of design and manufacturing increases in sophistication through information technology, automation and robotization, it is important for research to be carried out on how design can be carried out remotely, and how manufacturing prototyping can be rapidly speeded up. In this respect, high speed networking performance is absolutely critical to this concept of distributed design and manufacturing. It is an important area of research networking which is of direct pre-competitive relevance to the manufacturing industry both in the short and long term.

### **3. Proposed Milestones**

Jan 98:  
Initiate SubWorking Group management

April 98:  
Gather country representatives

June 98:  
Telemanufacturing Workshop and Demonstration, Singapore

June 98:  
Start operation of first prototype telemanufacturing facility on selected APAN exchange point and nodes.

Create a mechanism for industry in Asia Pacific region to be involved in early technology transfer

September 98:  
Design Databank and Web server

December 98:  
Submit a preliminary report to APAN about the effectiveness of telemanufacturing facility.

Begin proposal for replication of prototype telemanufacturing facility

### **4. Future Milestones**

Jan 99:  
Create Global Design tools that make up the Global Design facility.

Jan 00:  
Release mechanisms for companies to participate in the Global Design facility.

### **5. Prototype Facility**

TeleDesign Objects Databank Server

Rapid Prototyping and Manufacturing Workshop Facility

Internet tools for teledesign and telemanufacturing

Consultancy service

### **6. Singapore Prototype Facility**

## **Specification**

Unix database server – 20 Gbyte HD

Distributed suite of Reverse Engineering, Conventional Computer Numerical Control (CNC) Machining, Rapid Manufacturing and Prototyping Devices

- Stereo Lithographic Apparatus (SLA) (proposed)
- Selective Laser Sintering (SLS) (proposed)
- Laminated Object Manufacturing Device (LOM) \*
- Fused Deposition Manufacturing Device (FDM) \*
- Laser Object Scanning Device

Java Library and Interface Tools

High speed ATM Internet connectivity

## **Features**

Reverse Engineering capability

Rapid Prototyping

Rapid Micro-scale Manufacturing

Remote Device Control and Feedback

## **7. Replication of Prototype Facility in selected nodes in APAN**

Feasibility study on replication of prototype facility in other nodes

Sourcing of Funding